

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**



Applicant : Danishefsky *et al.* Examiner : NYA  
 Serial No. : 10/728,041 Art Unit : NYA  
 Filed : December 3, 2003  
 For : CLUSTERED MULTI-ANTIGENIC CARBOHYDRATE CONSTRUCTS,  
 METHODS FOR THEIR PREPARATION, AND USES THEREOF

**Certificate of Mailing**

I certify that this correspondence is being deposited with the United States Postal Service with sufficient postage as First Class Mail in an envelope addressed to: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450

January 9, 2004  
 Date

Signature

Kenneth R. Maben

Typed or Printed Name of person signing certificate

Commissioner for Patents  
 P. O. Box 1450  
 Alexandria, VA 22313-1450

Sir: :

**TRANSMITTAL**

Enclosed please find the following documents regarding the above-referenced matter:

1. Form PTO-1449 (7 pages);
2. Statement Filed Pursuant to the Duty of Disclosure Under 37 CFR §§1.56, 1.97 and 1.98 (6 pages);
3. Cited Art (17 references); and
4. Return Postcard.

Please charge any fees or credit any overpayments to our Deposit Account No. 03-1721.

Respectfully submitted,

Dated: January 9, 2004

Nadège M. Lagneau, Ph.D.  
 Reg. No. 51,908

PATENT GROUP  
 CHOATE, HALL & STEWART  
 Exchange Place  
 53 State Street  
 Boston, MA 02109  
 Tel: (617) 248-5000  
 Fax: (617) 248-4000



ATTORNEY'S DOCKET NO.: 2003080-0142 (SK-893-B-US)

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

Applicant : Danishefsky *et al.* Examiner : NYA  
Serial No. : 10/728,041 Art Unit : NYA  
Filed : December 3, 2003  
For : CLUSTERED MULTI-ANTIGENIC CARBOHYDRATE  
CONSTRUCTS, METHODS FOR THEIR PREPARATION, AND USES  
THEREOF

**Certificate of Mailing**

I certify that this correspondence is being deposited with the United States Postal Service with sufficient postage as First Class Mail in an envelope addressed to: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450

January 9, 2004  
Date

  
Kenneth R. Maben

Signature

Typed or Printed Name of person signing certificate

Commissioner For Patents  
P. O. Box 1450  
Alexandria, VA 22313

Sir:

**STATEMENT**

Pursuant to the duty of disclosure under 37 C.F.R. §§1.56, 1.97 and 1.98, Applicant requests consideration of this Information Disclosure Statement.

**Type of Statement**

The present Information Disclosure Statement is:

☒ An *original* Information Disclosure Statement; or

☐ A *supplemental* Information Disclosure Statement.

Compliance with 37 CFR § 1.97

The present Information Disclosure Statement is being filed:

- ☒ Pursuant to 37 CFR § 1.97(b); no fee or certification is required:
- ☒ Within three months of the filing date of a national application other than a continued prosecution application under § 1.53(d);
  - ☐ Within three months of the date of entry of the national stage as set forth in § 1.491 in an international application;
  - ☐ Before the mailing of a first Office action on the merits; or
  - ☐ Before the mailing of a first Office action after the filing of a request for continued examination under § 1.114.
- ☐ Pursuant to 37 CFR § 1.97(c) after the dates listed above but before the mailing date of any of a final action under § 1.113, a notice of allowance under § 1.311, or an action that otherwise closes prosecution in the application; Applicant hereby *either*:
- ☐ Certifies that *either*:
    - ☐ each item of information contained in the information disclosure statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of the information disclosure statement; or
    - ☐ That no item of information contained in the information disclosure statement was cited in a communication from a foreign patent office in a counterpart foreign application, and, to the

knowledge of the person signing the certification after making reasonable inquiry, no item of information contained in the information disclosure statement was known to any individual designated in § 1.56(c) more than three months prior to the filing of the information disclosure statement.; or

[ ] Includes herewith the fee set forth in § 1.17(p).

[ ] Pursuant to 37 CFR § 1.97(d), after the mailing date of any of a final action under § 1.113, a notice of allowance under § 1.311, or an action that otherwise closes prosecution in the application; Applicant hereby *both*:

[ ] Certifies that *either*:

[ ] each item of information contained in the information disclosure statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of the information disclosure statement; or

[ ] That no item of information contained in the information disclosure statement was cited in a communication from a foreign patent office in a counterpart foreign application, and, to the knowledge of the person signing the certification after making reasonable inquiry, no item of information contained in the information disclosure statement was known to any individual designated in § 1.56(c) more than three months prior to the filing of the information disclosure statement.; and

Content of the Information Disclosure Statement

Applicant hereby makes of record in the above-identified application the reference(s) listed on the attached form PTO-1449 (modified). The order of presentation of the references should not be construed as an indication of the importance of the references.

Applicant includes copies of references as indicated below:

- ☒ A copy of each cited reference not indicated with an asterisk is included;
- ☒ Copies of references indicated with an asterisk on the attached form PTO-1449 are not included pursuant to 37 CFR § 1.98(d) because they were previously provided to the United States Patent Office in an Information Disclosure Statement that complies with 37 CFR § 1.98(a)-(c) and was submitted in the following patent application that is relied upon in the present case for an earlier effective filing date under 35 USC § 120:

Serial Number	Filing Date	Status
09/641,742	August 18, 2000	Pending
10/209,618	July 31, 2002	Pending

- ☐ Copies of English translations of one or more non-English references are included.

Applicant hereby makes the following additional information of record in the above-identified application:

Applicant certifies that the Information Disclosure Statement *either*:

- ☐ Does not contain non-English language citations;
- ☐ Does contain non-English language citations, of which the following is a concise explanation:

[ ] Includes one or more translations of a non-English citation.

Remarks

The submission of this Information Disclosure Statement should not be construed as a representation that a search has been made.

The submission of this Information Disclosure Statement shall not be construed to be an admission that the information cited in the statement is, or is considered to be, material to patentability as defined in § 1.56(b).

The submission of this Information Disclosure Statement shall not be construed as a representation that the information cited in the Statement is, or is considered to be, in fact, prior art as defined by 35 U.S.C. §102.

It is respectfully requested that:

1. The Examiner consider completely the cited information, along with any other information, in reaching a determination concerning the patentability of the present claims;
2. The enclosed form PTO-1449 be signed by the Examiner to evidence that the cited patent(s) and publication(s) has (have) been fully considered by the Patent and Trademark Office during the examination of this application; and
3. The citations for the patent(s) and publication(s) be printed on any patent which issues from this application.

Notwithstanding any statements by Applicants, the Examiner is urged to form his or her own conclusions regarding the relevance of the cited reference(s).

Respectfully submitted,



Dated: January 8, 2004

---

Nadège M. Lagneau, Ph.D.  
Reg. No. 51,908

PATENT GROUP  
CHOATE, HALL & STEWART  
Exchange Place  
53 State Street  
Boston, Massachusetts 02109  
Tel: (617) 248-5000  
Fax: (617) 248-4000

Form PTO-1449  
(REV. 8-83)

U.S. Department of Commerce  
Patent and Trademark Office

Atty. Docket:  
2003080-0142  
(SK-893-B-US)

In re Application No.  
10/728,041

INFORMATION DISCLOSURE STATEMENT



(Use several sheets if necessary)

Applicant: Danishefsky *et al.*

Filing Date:  
December 3, 2003

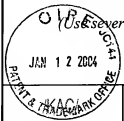
Group: NYA

U. S. PATENT DOCUMENTS

Examiner's Initials	U.S. Patent No.	Applicant	Issue Date	Class	Subclass
/KAC/	* 5,053,489	Kufe <i>et al.</i>	10/1/91	530	350
	* 5,212,298	Rademacher <i>et al.</i>	5/18/93	530	55.2
	* 5,229,289	Kjeldsen <i>et al.</i>	7/20/93	435	240.27
	* 5,280,113	Rademacher <i>et al.</i>	1/18/94	536	55.2
	* 5,376,531	Anderson <i>et al.</i>	12/27/94	435	240.24
	* 5,421,733	Nudelman <i>et al.</i>	6/6/95	435	105
	* 5,491,088	Hellerstrom <i>et al.</i>	2/13/96	435	240.24
	* 5,625,030	Williams <i>et al.</i>	4/29/97	528	361
	* 5,660,834	Kjeldsen <i>et al.</i>	8/26/97	424	277.1
	* 5,679,769	Danishefsky	10/21/97	530	322
	* 5,683,674	Taylor-Papadimitriou <i>et al.</i>	11/4/97	424	1.49
	* 5,747,048	Kjeldsen <i>et al.</i>	5/5/98	424	277.1
	* 5,798,090	Longnecker <i>et al.</i>	8/25/98	424	279.1
	* 5,807,559	Jondal <i>et al.</i>	9/15/98	424	278.1
	* 5,858,994	Kretzschmar <i>et al.</i>	01/12/99	514	62
	* 5,871,990	Clausen <i>et al.</i>	2/16/99	435	193



## INFORMATION DISCLOSURE STATEMENT



(Use several sheets if necessary)

Applicant: Danishefsky *et al.*Filing Date:  
December 3, 2003

Group: NYA

/KAC/	* 6,013,779	Wong <i>et al.</i>	1/11/00	536	18.6
/KAC/	6,090,789	Danishefsky <i>et al.</i>	7/18/00	514	25
/KAC/	* 6,222,020	Taylor-Papadimitriou <i>et al.</i>	4/24/01	530	395
/KAC/	* 6,238,668	Danishefsky <i>et al.</i>	5/29/01	424	184.1
/KAC/	US RE38,046 E	Longenecker <i>et al.</i>	3/25/03	424	279.1

## U. S. PATENT APPLICATIONS

	Document No.	Applicant	Filing Date		
/KAC/	* USSN 08/457,485	Taylor-Papadimitriou <i>et al.</i>	6/1/95		

## U. S. PATENT PUBLICATIONS

	U.S. Publication No.	Applicant	Publication Date	Class	Subclass
/KAC/	US 2002/0006900	Danishefsky <i>et al.</i>	January 17, 2002	514	8
/KAC/	US 2002/0038017	Danishefsky <i>et al.</i>	March 28, 2002	536	53

## FOREIGN PATENT DOCUMENTS

Examiner's Initials	Document No.	Country	Publication Date	Translation	
				Yes	No
/KAC/	* EP 341252	EP	11/19/97		
/KAC/	* JP 8-319300	JP	12/3/96		X

INFORMATION DISCLOSURE STATEMENT

Applicant: Danishefsky *et al.*

Filing Date:  
December 3, 2003

Group: NYA



/KAC/	* WO 96/34005	PCT	10/31/96		
/KAC/	* WO 96/40198	PCT	12/19/96		
/KAC/	* WO 98/30190	PCT	7/16/98		
/KAC/	* WO 98/46246	PCT	10/22/98		
/KAC/	WO 99/15201	PCT	4/1/99		
/KAC/	* WO 99/48515	PCT	9/30/99		
/KAC/	* WO 01/14395	PCT	03/01/01		

Examiner's  
Initials

**OTHER DOCUMENTS**  
(Including Author, Title, Date, Pertinent Pages, Etc.)

/KAC/	Allen <i>et al.</i> , "Pursuit of optimal carbohydrate-based anticancer vaccines: preparation of a multiantigenic unimolecular glycopeptide containing the Tn, MBrl, and Lewis <sup>x</sup> antigens", <i>J. Am. Chem. Soc.</i> , <b>123</b> :1890-1897, 2001.
	* Allen, <i>et al.</i> , "A Second Generation Synthesis of the MBrl (Globo-H) Breast Tumor Antigen: New Application of the N-Pentenyl Glycoside Method for Achieving Complex Carbohydrate Protein Linkages", <i>Chem. Eur. J.</i> , <b>6</b> (8): 1366-1375, 2000.
	* Balcom, B.J. and Petersen, N.O., "Synthesis and Surfactant Behavior of an Unusual Cyclic Triester Based on a <i>cis</i> , <i>cis</i> -1, 3, 5-Cyclohexanetriol Headgroup," <i>Langmuir</i> , <b>7</b> :2425-2427, 1991.
	* Bayle, <i>et al.</i> , "O-(3-Butenyl) A Stable Blocking Group Removable by Ozonolysis", <i>Carbohydrate Research</i> , <b>232</b> : 375-380, 1992.
	* Bencomo <i>et al.</i> , "Synthesis of glycopeptides having clusters of O-glycosylic disaccharide chains. . .," <i>Carbohydrate Research</i> , <b>116</b> , C9-C12, 1983.
	* Bilodeau M.T., "Total Synthesis of a Human Breast Tumro Associated Antigen", <i>J. Am. Chem. Soc.</i> , <b>117</b> :7840-7841, 1995.
	Biswas <i>et al.</i> , "Construction of carbohydrate-based antitumor vaccines: synthesis of glycosyl amino acids by olefin cross-metathesis", <i>Tetrahedron Letters</i> , <b>43</b> :6107-6110, 2002.
	Blackwell <i>et al.</i> , "New approaches to olefin cross-metathesis", <i>J. Am. Chem. Soc.</i> , <b>122</b> :58-71, 2000.

INFORMATION DISCLOSURE STATEMENT



several sheets if necessary)

Applicant: Danishefsky *et al.*

Filing Date:  
December 3, 2003

Group: NYA

- \* Boehm T. *et al.*, "Development of a Novel Silyl Ether Linker for Solid-Phase Organic Synthesis" *J. Org. Chem.*, **61**:6498-6499, 1996.
- \* Boon, T., "Toward a Genetic Analysis of Tumor Rejection Antigens," *Adv. Can. Res.*, **58**:177-211, 1992.
- \* Bosse *et al.*, "Linear synthesis of the tumor-associated carbohydrate antigens Globo-H, SSEA-3, and Gb3", *J. Org. Chem.*, **67**:6659-6670, 2002.
- \* Broddefalk, *et al.*, "Preparation of a Glycopeptide Analogue of Type II Collagen - Use of Acid Labile Protective Groups for Carbohydrate Moieties in Solid Phase Synthesis of O-Linked Glycopeptides", *Tetrahedron Letters, NL, Elsevier Science*, **37**(17): 3011-3014, 1996.
- \* Cabaret, *et al.*, "Amphiphilic Liposaccharides. Synthesis and Reductive Cleavage of C-Allyl, O-Allyl, and O-Butenyl Glycosyl Derivatives", *Carbohydrate Research*, **189**: 341-348, 1989.
- \* Chan *et al.*, "Polymer-anchored Organosilyl Protecting Group in Organic Synthesis," *J. Chem. Soc., Chem. Commun.*, 909-911, 1985.
- \* Collins and Ferrier "Monosaccharides: Their Chemistry and Their Roles in Natural Products, Publ. by John Wiley & Sons, Ltd., page 4, 1995.
- \* Commissions on Nomenclature of Organic Chemistry and Physical Organic Chemistry, IUPAC, *Pure and Applied Chemistry*, **67**, 1325 and 1334, 1995.
- \* Danishefsky *et al.* "Glycals in Organic Synthesis: The Evolution of Comprehensive Strategies for the Assembly of Oligosaccharides and Glycoconjugates of Biological Consequence" *Angew. Chem. Int. Ed. Engl.*, **35**:1380-1419, 1996.
- \* Danishefsky *et al.* "From the Laboratory to the Clinic: A Retrospective on Fully Synthetic Carbohydrate-Based Anticancer Vaccines" *Angew. Chem. Int. Ed. Engl.*, **39**:836-863, 2000.
- \* Dermer, G.B., "Another Anniversary for the War on Cancer," *BioTechnology*, **12**, 320, 1994.
- \* Deshpande *et al.*, "Strategy in Oligosaccharide Synthesis: An Application to a Concise Total Synthesis of the KH-1 (Adenocarcinoma) Antigen," *J. Am. Chem. Soc.*, **120**, 1600-1614, 1998.
- \* Elofsson and Kihlberg, "Synthesis of Tn and Sialyl Tn Building Blocks for Solid Phase Glycopeptide Synthesis," *Tetrahedron Letters*, **36**, 7499-7502, 1995
- \* Elofsson *et al.*, "Preparation of Tn and Sialyl Tn Building Blocks. . . ,", *Tetrahedron*, **53**, 369-390, 1997.
- \* Ezzell, "Cancer "Vaccines": An Idea Whose Time Has Come?" *J. NIH Res*, **7**, 46-49, 1995.
- \* Finn *et al.*, "MUC-1 Epithelial Tumor Mucin-based Immunity and Cancer Vaccines" *Immunol. Rev.*, **145**, 61-89, 1995.
- \* Freshney, R.I., "Culture of Animal Cells, A Manual of Basic Techniques, Alan R. Liss, Inc., New York, p. 3-4, 1983.
- \* Fung *et al.*, "Active Specific Immunotherapy of Murine Mammary. . . ,", *Cancer Research*, **50**, 4308-4314, 1990.

INFORMATION DISCLOSURE STATEMENT



(See several sheets if necessary)

Applicant: Danishefsky *et al.*

Filing Date:  
December 3, 2003

Group: NYA

- \* Garg *et al.*, "Developments in the Synthesis of Glycopeptides Containing Glycosyl L-Asparagine, L-Serine, and L-Threonine" *Adv. Carb. Chem. Biochem.*, **50**, 277-310, 1994.
- \* Gleiter *et al.*, "Synthesis and Properties of Eight- and Ten-Membered Selenaradialenes," *Tetrahedron Letters*, **35**, 8779-8782, 1994.
- \* Grice *et al.*, "Tuning and Reactivity of Glycosides: Efficient One-pot Oligosaccharide Synthesis," *Synlett*, 781-784, 1995.
- \* Iijima, H. and Ogawa, T. "Synthesis of Mucin-type O-Glycosylated Amino Acid  $\beta$ -Gal-(1-3)-[ $\alpha$ -Neu5Ac-2 6]-GalNAc-(1 3)-Ser" *Carbohydr. Res.*, **186**, 95-106, 1989.
- \* Kaizu *et al.*, "Novel Fucolipids of Human Adenocarcinoma: Monoclonal Antibody Specific for Trifucosyl Le<sup>x</sup> (III)<sup>2</sup>FucV<sup>2</sup>FucVI<sup>2</sup>FucnLc<sub>6</sub>) and a Possible Three-dimensional Epitope Structure," *J. Biol. Chem.* **261**, 11254-11258, 1986.
- \* Kameyama *et al.*, "Total Synthesis of Sialyl Lewis X\*," *Carbohydrate Research*, **209**, c1-c4, 1991.
- Keding *et al.*, "Hydroxynorleucine as a glycosyl acceptor is an efficient means for introducing amino acid functionality into complex carbohydrates", *Tetrahedron Letters*, **44**:3413-3416, 2003.
- \* Kim *et al.*, "Expression of Le<sup>x</sup> and Extended Le<sup>x</sup> Blood Group-related Antigens in Human Malignant, Premalignant, and Nonmalignant Colonic Tissues," *Cancer Res.*, **46**, 5985-5992, 1986.
- Kim *et al.*, "Effect of immunological adjuvant combinations on the antibody and T-cell response to vaccination with MUC1-KLH and GD3-KLH conjugates", *Vaccine*, **19**:530-537, 2001.
- \* Koganty *et al.*, "Glycopeptide- and Carbohydrate-based Synthetic Vaccines for the Immunotherapy of Cancer," *Drug Discovery Today*, **5**, 190-198, 1996.
- \* Kondo *et al.*, "In vitro Action of Human and Porcine  $\alpha$ -amylases . . .," *Carbohydrate Research*, **204**, 207-213, 1990.
- Kudryashov *et al.*, "Toward optimized carbohydrate-based anticancer vaccines: Epitope clustering, carrier structure, and adjuvant all influence antibody responses to lewis<sup>x</sup> conjugates in mice", *Proc. Natl. Acad. Sci. USA*, **98**:3264-3269, 2001.
- \* Kunz, H. and Birnbach, S., "Synthesis of O-Glycopeptides of the Tumor-Associated T<sub>N</sub> . . .," *Angew. Chem. Int. Ed. Engl.*, **25**, 360-362, 1986.
- \* Lassaletta, *et al.*, "Glycosyl Imidates. Synthesis of the Hexasaccharide Moiety of Globo H (Human Breast Cancer) Antigen", *Liebigs Ann.* **9**: 1417-1423, 1996.
- \* Lay L. *et al.*, "Oligosaccharides Related to Tumor-Associated Antigens", *Helv. Chim. Acta*, **77**:509-514, 1994.
- \* Liebe, B. and Kunz, H., "Solid Phase Synthesis of a Tumor-Associated Sialyl-T<sub>N</sub> Antigen Glycopeptide- . . .," *Angew. Chem. Int. Ed. Engl.* **33**, 618-621, 1997.

INFORMATION DISCLOSURE STATEMENT



Applicant: Danishefsky *et al.*

Filing Date:  
December 3, 2003

Group: NYA

\* Lönn, H. "Synthesis of a Tri- and a Hepta-saccharide. . .," *Carbohydrate Research*, 139, 105-113, 1985

Nicolaou *et al.*, "A practical and enantioselective synthesis of glycosphingolipids and related compounds. Total synthesis of Globotriasylceramide (Gb<sub>3</sub>)", *J. Am. Chem. Soc.*, 110:7910-7912, 1988.

\* Nicolaou *et al.*, "Stereocontrolled Synthesis of Sialyl Le<sup>x</sup>. . .," *J. Chem. Soc., Chem. Commun.*, 870-872, 1991.

\* Nudelman *et al.*, "Novel Fucolipids of Human Adenocarcinoma: Characterization of the Major Le<sup>y</sup> Antigen of Human Adenocarcinoma as Trifucosylnonaoyl Le<sup>y</sup> Lycopid (III<sup>3</sup>FucV<sup>3</sup>FucVI<sup>2</sup>FucnLc<sub>6</sub>)", *J. Biol. Chem.*, 261, 11247-11253, 1986.

\* Park, *et al.*, "Total Synthesis and Proof of Structure of a Human Breast Tumor (Globo-H) Antigen", *J. Am. Chem. Soc.*, 118(46): 11488-11500, 1996.

\* Paulsen *et al.*, "Glycosidierung mit Thioglycosiden von Oligosacchariden zu Segmenten von O-Glycoproteinen" *Liebigs Ann. Chem.*, 75-86, 1988.

\* Ragupathi *et al.*, "Immunization of Mice with a Fully Synthetic Globo H Antigen Results in Antibodies Against Human Cancer Cells: A Combined Chemical Immunological Approach to the Fashioning of an Anticancer Vaccine" *Angew. Chem. Int. Ed. Engl.* 36, 125-128, 1997.

\* Ragupathi, *et al.*, "A Fully Synthetic Globo H Carbohydrate Vaccine Induces a Focused Humoral Response in Prostate Cancer Patients: A Proof of Principle", *Angew. Chem., Int. Ed.*, 38(4): 563-566, 1999.

\* Ragupathi, G. "Carbohydrate Antigens as Targets for Active Specific Immunotherapy" *Cancer Immunol. Immunther.*, 43, 152-157, 1996.

Ragupathi *et al.*, "On the power of chemical synthesis: Immunological evaluation of models for multiantigenic carbohydrate-based cancer vaccines", *Proc. Natl. Acad. Sci. USA*, 99(21):13699-13704, 2002.

\* Randolph J.T. *et al.*, "An Interactive Strategy for the Assembly of Complex, Branched Oligosaccharide Domains on a Solid Support: A Concise Synthesis of the Lewis<sup>b</sup> Domain in Bioconjugatable Form", *Angew. Chem. Int. Ed. Engl.*, 33(14):1470-1473, 1994.

\* Randolph *et al.*, "Major Simplifications in Oligosaccharide Syntheses Arising from a Solid-Phase Based Method: An Application to the Synthesis of the Lewis b Antigen", *J. Amer. Chem. Soc.*, 117, 5712-5719, 1995.

\* Reid, *et al.*, "N-Pentenyl Glycosides in Organic Chemistry: A Contemporary Example of Serendipity", *Synlett*, 927-942, 1992.

\* Roberge *et al.*, "A Strategy for a Convergent Synthesis of N-Linked Glycopeptides on a Solid Support," *Science* (Washington, D.C.), 269, 202-204, 1995.

\* Schultheiss-Riemann, P. and Kunz, H., "O-Glycopeptide Synthesis. . .," *Angew. Chem. Int. Ed. Engl.*, 22, 62-63, 1983.

## INFORMATION DISCLOSURE STATEMENT



(Use several sheets if necessary)

Applicant: Danishefsky *et al.*Filing Date:  
December 3, 2003

Group: NYA

- \* Seeberger *et al.*, "Synthesis of Biologically Important Oligosaccharides and Other Glycoconjugates by the Glycal Assembly Method," *Aldrichimica Acta*, **30**(3), 75-92, 1997.
- \* Slovin *et al.*, "Carbohydrate Vaccines in Cancer: Immunogenicity of Fully Synthetic Globo H Hexasaccharide Conjugate in Man" *Proc. Natl. Acad. Sci. USA*, **96**, 5710-5715, 1999.
- \* Spitler, "Cancer Vaccines: The Interferon Analogy," *Cancer Biotherapy*, **10**, 1-3, 1995.
- \* Tao, M. and Levy, R. "Idiotypic/Granulocyte-macrophage Colony-stimulating Factor Fusion Protein as a Vaccine for B-cell Lymphoma," *Nature*, **362**, 755-758, 1993.
- \* Tokoyuni *et al.*, "Synthetic Vaccines: I. Synthesis of Multivalent Tn Antigen Cluster-Lysyllysine Conjugates," *Tetrahedron Lett.*, **31**, 2673-2676, 1990.
- \* Tokoyuni, T. and Singhal, A.K., "Synthetic Carbohydrate. . .," *Chem. Soc. Rev.*, **24**, 231-242, 1995.
- \* Toyokuni *et al.*, "Synthetic Carbohydrate Vaccines: Synthesis and Immunogenicity of Tn Antigen Conjugates", *Bioorg. Med. Chem.*, **2**, 1119-1132, 1994.
- \* Udodong, *et al.*, "A Ready, Convergent Synthesis of the Heptasaccharide GPI Membrane Anchor of Rat Brain Thy-1 Glycoprotein" *J. Am. Chem. Soc.*, **115**: 7886-7887, 1993.
- \* Waldmann *et al.* "New Enzymatic Protecting Group Techniques for the Construction of Peptides and Glycopeptides" *Biomed. Biochim. Acta*. **50** (10/11) S243-S248, 1991.
- Williams *et al.*, "In pursuit of an anticancer vaccine: a monomolecular construct containing multiple carbohydrate antigens", *Tetrahedron Letters*, **41**:9505-9508, 2000.
- \* Yura *et al.*, "Preparation of oligosaccharide-linked polystyrene and method for immobilization of lectin and base materials for cells", abstract, Jpn. Kokai Tokkyo Koho (Japan), 03 December 1996.
- \* Zhang *et al.*, "Immune Sera and Monoclonal Antibodies Define Two Configurations for the Sialyl Tn Tumor Antigen", *Cancer Res.*, **55**, 3364-3368, 1995.
- Database BIOSIS'Online! Biosciences Information Service, Philadelphia, PA, US; 22 March 2002, Kovbasnjuk Olga *et al.*, "Glycosphingolipid Gb3 as biomarker for invasive colon carcinoma cells", *FASEB Journal*, **16**(5):A1200, 2002, Annual Meeting of Professional Research Scientists on Experimental Biology; New Orleans, LA, USA, April 20-24, 2002.
- International Search Report issued for PCT application PCT/US03/22657 Feb 5, 2004

EXAMINER /Karen A. Canella, Ph.D./

DATE CONSIDERED 07/09/2007

EXAMINER: Initial if citation considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

\* denotes references cited in IDS'es submitted for parent applications USSN 09/083,776, filed March 25, 1998; and 10/209,618, filed July 31, 2002.